a slot from the third layer (S3) in one slot **40** to the fourth layer (S4) in another adjacent slot **40**.

[0056] As above, the layer transition segments **54***a*, **54***b*, **54***c* are formed to make a slant passage from a certain stage toward an adjacent stage within the plane perpendicular to the central axis CL of the stator core **4**. As depicted in FIG. **11**(*a*), the layer transition segments **54***a*, **54***b*, **54***c* are arranged so as to be slightly non-aligned vertically in relation to one another in a winding direction of the winding part **50**, so that adjoining first straight-line segments **56***a* are brought in close contact with each other.

[0057] FIG. **14**(*a*) is a perspective view depicting layer transition segments **54***a*, **54***b*, **54***c* formed in first straight-line segments **56***a*. FIG. **14**(*b*) is a view in which portions representing layer transition segments **54***a*, **54***b*, **54***c* and curved corner segments **55** are hatched in FIG. **14**(*a*). As depicted, in the present embodiment, a part of each layer transition segment **54***a*, **54***b*, **54***c* is formed by a part of a curved corner segment **55**.

[0058] One end of a layer transition segment **54***a* does not overlap a curved corner segment **55** (see a curved corner segment **55** depicted in the front side in FIG. **14**(*b*)) and a non-overlap region **57** (not hatched in the depiction) is formed between the layer transition segment **54***a* and the curved corner segment **55**. The other end of the layer transition segment **54***a* overlaps a curved corner segment **55** (see a curved corner segment **55** depicted in the back side in FIG. **14**(*b*)) and an overlap region **58** is formed.

[0059] One end of a layer transition segment **54***b* overlaps a curved corner segment **55** (see a curved corner segment **55** depicted in the front side in FIG. **14**(*b*)) and an overlap region **58** is formed. The other end of the layer transition segment **54***b* does not overlap a curved corner segment **55** (see a curved corner segment **55** depicted in the back side in FIG. **14**(*b*)) and a non-overlap region **57** (not hatched in the depiction) is formed between the layer transition segment **54***b* and the curved corner segment **55**.

[0060] One end of a layer transition segment **54***c* overlaps a curved corner segment **55** (see a curved corner segment **55** depicted in the front side in FIG. **14**(*b*)) and an overlap region **58** is formed. The other end of the layer transition segment **54***c* does not overlap a curved corner segment **55** (see a curved corner segment **55** depicted in the back side in FIG. **14**(*b*)) and a non-overlap region **57** (not hatched in the depiction) is formed between the layer transition segment **54***c* and the curved corner segment **55**.

[0061] As above, by configuring curved corner segments **55** in the end portions of the layer transition segments **54***a*, **54***b*, **54***c*, it is possible to decrease a dimension of a winding part **50** in a tooth width direction and enable downsizing the stator coils **5**. And now, the layer transition segments **54***a*, **54***b*, **54***c* may also be collectively termed herein as a layer transition segment **54**.

[0062] A process of manufacturing a rotating electric machine **100** is described. FIG. **15** is a diagram to explain the process of manufacturing the rotating electric machine **100**. As depicted in FIG. **15**, the process of manufacturing the rotating electric machine **100** includes a preparation step S**100**, a coil forming step S**110**, a stator assembling step S**120**, a coil connecting step S**130**, and a rotor assembling step S**140**.

Preparation Step

[0063] In the preparation step S**100**, all components constituting the rotating electric machine **100** are prepared, including, e.g., a center bracket **9***c*, end brackets **9***a*, **9***b*, a stator core **4**, a rotor **2**, etc. Permanent magnets are pre-installed in the rotor core of the rotor **2** and the shaft **8** is press fit in the hollow portion of the rotor core and integrated with the rotor core.

Coil Forming Step

[0064] In the coil forming step, stator coils **5** which are to be installed around the respective teeth **41** are formed (see FIG. **10**). The coil forming step S**110** will be detailed later.

Stator Assembling Step

[0065] In the stator assembling step S**120**, the stator core is fixed to the center bracket **9***c* by shrink fitting. The center bracket **9***c* which is pre-heated and whose inside diameter has been widen by thermal expansion is fit on the stator core **4**. By cooling the center bracket **9***c*, its inside diameter is shrunk to tighten the outer periphery of the stator core **4**.

Coil Connecting Step

[0066] In the coil connecting step S**130**, the respective stator coils **5** are installed around the teeth **41**. Install a winding part **50** around a tooth **41** from inward of the stator core **4** and join a connection terminal **52** of one stator coil **5** to a connection terminal **53** of another stator coil **5**, thus forming each phase (U-phase, V-phase, W-phase) winding. And now, the insulators **20** should be pre-installed in the stator core **4** and, after that, install the stator coils **5** around the teeth and install the drop-off preventing pieces **21** from the opening ends of the slots **40**.

[0067] The second straight-line segments **56***c*, **56***d* which make long parallel sides of a conductor winding turn of a unit winding subpart **51** are placed within a slot **40**, and the first straight-line segments **56***a*, **56***b* which make short parallel sides of a conductor winding turn of a unit winding subpart **51** are placed outside the slot **40**.

Rotor Assembling Step

[0068] In the rotor assembling step S**140**, install the shaft **8** in the bearing **11** of one end bracket **9***a*. Fit the one end bracket **9***a* to close up one open side of the center bracket **9***c* so that the rotor **2** will be placed inside the stator **1** and fasten the end bracket **9***a* to the center bracket **9***c*. Fit the other end bracket **9***b* to close up the other open side of the center bracket **9***c* and fasten the end bracket **9***b* to the center bracket **9***c*. Through the above steps, the rotating electric machine **100** is completed.

[0069] The coil forming step S**110** is detailed with reference to FIG. **16**. FIG. **16** is a diagram to explain the process of manufacturing a stator coil **5**. The coil forming step S**110** forms a plurality of unit winding subparts **51** of a rectangular annular shape by repeatedly performing bending work on one linear conductor **60**. An incline segment **62** which makes each of the layer transition segments **54***a*, **54***b*, **54***c* is formed by press working of the linear conductor **60** with dice **70***a*, **70***b* and, after that, curved corner segments **55** including a part of the incline segment **62** are formed by performing bending work on the conductor at forward and rear ends of the incline segment.